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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,853	01/18/2002	Harumi Ishiyama	03500.016113	1345

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EXAMINER

BRASE, SANDRA L

ART UNIT	PAPER NUMBER
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2852

DATE MAILED: 02/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/050,853

Applicant(s)

ISHIYAMA ET AL.

Examiner

Sandra L. Brase

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other: .

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the intermediate transfer member must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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On line 43 of claim 1, and on line 58 of claim 9, the variable "m" appears, but is not defined in the respective claim.

On line 2 of claim 3, it is unclear as to which conductive particles "said conductive particles" refers to, the conductive particles present at the contact surfaces between the charging member and the charging object member, as defined in claim 1, or the conductive particles of the magnetic one-component developer, as defined in claim 2.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-4 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chigono et al. (US 6,038,418) in view of Kukimoto et al. (US 5,915,150), Haneda et al. (US 5,381,215), Kato et al. (US 6,054,244) and Van Nostrand's Scientific Encyclopedia.

Chigono et al. (...418) discloses an image-forming apparatus and method comprising: a charging object member, which is an electrophotographic photosensitive member (1); a charging assembly (2) which is in contact with the charging object member to electrostatically charge the charging object member; an exposure assembly (4) which forms an electrostatic latent image on the charging object member by exposure (col. 9, lines 24-33); a non-contact developing assembly (5) making use of a magnetic one-component developer, where the developer comprises a magnetic toner having a binder resin and a magnetic material (col. 9, lines 59-61), which develops the electrostatic image with the magnetic one-component developer to form a magnetic-toner image (col. 9, lines 34-58); a transfer charging assembly (6) which transfers to a recording medium the magnetic-toner image formed on the charging object member (col. 9, line 65 – col. 10, line 16); and collecting a magnetic toner remaining on the charging object member by the developing assembly simultaneously with a development of the latent image in a subsequent image forming process, where the charging object member was charged again and exposed again and the new toner image developed is transferred to a recording medium (col. 15, line 15 – col. 16, line 21; and figure 2). The charging assembly comprises a charging member constituted of an elastic body having a shape of a roller and having a porous material on its surface (col. 10, lines 33-36), where the surface of the charging member is movable with a velocity differential in the opposite direction with respect to the surface of the charging object member (col. 9, lines 7-10), and conductive particles are present at least at the contact surfaces between the charging member and the charging object member (col. 12, lines 48-51). The conductive particles have a specific resistance of no more than $10^{12} \Omega \text{ cm}$ (col. 12, lines 1-4), and an average particle diameter of 10nm – 50 μm (col. 12, lines 16-43). The magnetic one-

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component developer has conductive particles (col. 9, lines 38-40). The outer-most surface layer of the charging object member has a volume resistivity of $10^9 - 10^{14} \Omega\text{cm}$ (col. 20, lines 58-67). The charging member has a hardness of 25 degrees to 50 degrees Asker C (col. 11, lines 1-8). However, Chigono et al. (...418) do not disclose the specific amount of the velocity differential, the roughness of the charging member, the contact angle with water of the charging object member, and the value of the average circularity of the developer as determined by the claimed equations. Kukimoto et al. (...150) disclose an image forming apparatus and method comprising a charging object member and a charging assembly, where the surface of the charging member is movable with a velocity differential in the opposite direction with respect to the surface of the charging object member, where the velocity differential at least -110% (col. 26, lines 21-30; and figure 1). The charging object has a surface with a contact angle to water of at least 85 degrees, more preferably 90 degrees (col. 20, lines 61-66). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the velocity differential have the value of at least -110% , which is in the claimed range, so as to provide a stable charging performance and an improved performance of transfer of residual toner recovery in the development step, as disclosed by Kukimoto et al. (...150). Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the charging object member have a contact angle to water of at least 85 degrees, preferably 90 degrees, which is in the claimed range, so as to improve the transferability of the toner in the transfer step, thereby remarkably reducing the amount of transfer residual toner, as disclosed by Kukimoto et al. (...150). Haneda et al. (...215) disclose an image-forming apparatus and method including a charging object member, and a charging assembly having a charging member and conductive particles are present at the contact

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surfaces between the charging member and the charging object member (figure 2), where the charging member has a mean surface roughness of 2-15 μm (col. 5, lines 65-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the charging member have a surface roughness of 2-15 μm , which is in the claimed range, so as to provide stable and uniform conveyance of the conductive particles, as disclosed by Haneda et al. (...215). Kato et al. (...244) disclose a magnetic toner used in an image-forming apparatus and method (col. 14, lines 52-54) that has an average circularity of 0.970 to less than 1.000 (abstract; and col. 8, lines 60-62). The circularity is determined by the following equation:

Circumferential length of a circle having the same projected area as a particle image

Circumferential length of the particle image

(See col. 18, lines 42-54). It would have been obvious to one of ordinary skill in the art at the time of invention was made to have the toner have a circularity of 0.970 to less than 1.000, which is in the claimed range, so that the toner particles have a superior triboelectric charging performance and can be charged stably, and hence are characteristic of superior transfer performance in electrophotographic systems, as disclosed by Kato et al. (...244). Moreover, Van Nostrand's Scientific Encyclopedia defines an ordinary average, where there are n measurements of some physical quantity made, as being calculated by the mathematical equation of: $X = \sum X_i/n$ (page 151). It would have been obvious to one of ordinary skill in the art at the time of the invention to have the average circularity be calculated using the claimed equation for the average since such a mathematical equation is a notoriously well known and established equation for calculating an average of plural measurements, as disclosed by Van Nostrand's Scientific Encyclopedia.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chigono et al. (US 6,038,418) in view of Kukimoto et al. (US 5,915,150), Haneda et al. (US 5,381,215), Kato et al. (US 6,054,244) and Van Nostrand's Scientific Encyclopedia as applied to claim 5 above, and further in view of Chigono et al. (US 5,659,852).

Chigono et al. (...418) in view of Kukimoto et al. (...150), Haneda et al. (...215), Kato et al. (...244) and Van Nostrand's Scientific Encyclopedia disclose the features mentioned previously, but do not disclose an intermediate transfer member. Chigono et al. (...852) disclose an image-forming apparatus and method including an intermediate transfer member, where an image formed on a charging object member is transferred to a recording medium via the intermediate transfer member (col. 14, lines 11-22). It would have been obvious to one of ordinary skill in the art at the time of the invention to include an intermediate transfer member since the use of intermediate transfer members are notoriously well known in the art, as disclosed by Chigono et al. (...852).

Contacts \ Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra L. Brase whose telephone number is (703) 308-3101.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur T. Grimley, can be reached on (703) 308-1373. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3431 or 305-3432.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read "Sandra L. Brase".

Sandra L. Brase
Primary Examiner
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January 30, 2003